IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Kurt-Reiner Geiss	Confirmation No.: 4213
Application No.: 10/665,394	Attorney Docket No.: 7390-X03-018
Filed: September 17, 2003	Group Art Unit: 1612
For: FOOD PRODUCT FOR IMPROVING COGNITIVE FUNCTIONAL CAPACITY	Examiner: Snigdha Maewall

APPEAL BRIEF

Mail Stop: Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Introductory Comments

Dear Sir:

Appellant hereby respectfully submits this brief in support of his appeal to the Board of Patent Appeals and Interferences of the Examiner's final rejection of claims 14, 15, 17-19, and 23-46 of the above-referenced application. Reconsideration of the Application, withdrawal of the rejections, and allowance of the claims are respectfully requested.

Table of Contents for this Appeal Brief and Attached Appendixes i-v

I. Real Party in Interest

The real parties in interest are GIVENTIS GMBH and DEGUSSA FOOD INGREDIENTS GMBH, the co-assignees of record.

II. Related Appeals and Interferences

There are no related appeals or interferences.

III. Status of Claims

Claims 14, 15, 17-19, and 23-46 are pending.

Claims 14, 15, 17-19, and 23-46 are rejected.

Claims 1-13, 16, and 20-22 are cancelled.

The Appellant is appealing the rejection of independent claims 14, 23, 32, and 43 (and all other remaining claims that depend from these claims). Claims 14, 23, 32, and 43 are on appeal.

IV. Status of Amendments

The Appellant filed an Amendment After Final Under 37 C.F.R. §1.116 on January 14, 2010. The Examiner did not enter this Amendment as indicated by the check mark in Box 7(a) of the Advisory Action mailed on January 29, 2010. Therefore, the instant appeal is based on claims 14, 15, 17-19, and 23-46 as entered on June 12, 2009.

V. Summary of the Claimed Subject Matter

This summary references page numbers and line numbers of the Specification as originally filed.

The pending independent claims under appeal in this case are composition claims (claims 14, 23, and 32) and a method claim (claim 43).

Many food additive elements have the ability to create a food product having a nutrient-physiological effect on a consumer of the food product. By including such additives in a food product, the food product is made a "functional food", which beyond

the purely nutritional purposes, has a desired physiological effect. *See* page 3, lines 15-21 and page 8, lines 13-20.

All of the claims in the present application are directed toward a functional food product, including a synergistic combination of phosphatidyl serine and carbohydrates, for improving the cognitive functional capacity of the consumer of the food product. *See* page 3, lines 15-28 and page 10, lines 1-2 (abstract).

The following identifies the subject matter defined in each of the claims under appeal in the present application.

Specific support for all claims being appealed (claims 14, 15, 17-19, and 23-46) can also be found in the Claim Support Charts of Appendix ii.

Independent Claim 14 with Dependent Claims 15, 17-19, 37, and 40

Independent claim 14 is drawn to a food for improving the cognitive functional capacity of a consumer of the food. The food comprises a minimum of 100 mg to about 200 mg of phosphatidyl serine and a minimum of 10 g to 20 g of carbohydrates. *See* page 1, lines 7-8; page 2, lines 15-18; page 3, lines 22-28; page 4, lines 3-8; and page 10, lines 1-2 (abstract). Dependent claim 15 defines improving cognitive functional capacity as increasing memory, concentration, and attentiveness in the consumer of the food. *See* page 1, lines 7-8 and page 2, lines 15-18. Dependent claim 17 defines the carbohydrates as simple carbohydrates such as glucose, fructose, sucrose, and combinations thereof. *See* page 1, lines 7-8; page 3, lines 22-28; and page 8, lines 1-7. Dependent claim 18 indicates that the food can further include a minimum of 10 wt% of protein. *See* page 4, lines 9-11. Dependent claim 19 defines the food as a "functional food" which can be beverages, bread spreads, chocolate products, candy products, milk, diary products, diet foods, and cereals. *See* page 8, lines 13-20. Dependent claim 37 indicates that the carbohydrates have a high glycemic index (GI). *See* page 3, lines 15-28. Dependent claim 40 clarifies the synergistic effect of the claimed food; *i.e.* the combination of phosphatidyl serine and carbohydrates has a greater effect on cognitive functional capacity when consumed together in a food than each has when consumed separately. *See* page 3, lines 22-28; page 4, lines 3-8; and page 8, lines 13-20.

Independent Claim 23 with Dependent Claims 24-31, 36, 38, and 41

Independent claim 23 is drawn to a food bar for improving cognitive functional capacity of a consumer of the food bar. The food bar comprises a combination of phosphatidyl serine and carbohydrates, the combination including a minimum of 100 mg to about 200 mg of phosphatidyl serine and a minimum of 10 g to 20 g of carbohydrates. Consumption of the food bar improves glucose intake into the brain cells of the consumer of the food bar. *See* page 1, lines 7-8; page 2, lines 15-18; page 3, lines 22-28; page 4, lines 3-8; and page 10, lines 1-2 (abstract). Dependent claim 24 defines improving cognitive functional capacity as increasing memory, concentration, and attentiveness in the consumer of the food. *See* page 1, lines 7-8 and page 2, lines 15-18. Dependent claim 25 indicates that the bar food bar can have a weight in the range of at least 20 g to about 35 g. *See* page 4, lines 14-19, 28-29; page 8, lines 1-7; Figure 2A; and Figure 2B. Dependent claim 26 defines the carbohydrates as simple carbohydrates such as glucose, fructose, sucrose, and combinations thereof. *See* page 1, lines 7-8; page 3, lines 22-28; and page 8, lines 1-7. Dependent claims 27-29 indicate that the food bar can further include a minimum of 10 wt% to about 16 wt% of protein (page 4, lines 9-11); a minimum of 15 wt% to about 27 wt% of fat (page 4, lines 9-11); and a water content of less than 3% (page 4, lines 20-21). Dependent claim 30 indicates that the food bar has a chocolate coating and is enriched with vitamins. *See* page 3, lines 29-30; page 4, lines 12-13, 28-29; page 7, lines 26-31; page 8, lines 1-7; and Figure 2B. Dependent claim 31 defines the food bar as a "functional food product." *See* page 8, lines 13-20. Dependent claim 36 describes the food bar as including 200 mg of phosphatidyl serine and 18 g of carbohydrates and as capable of improving cognitive functional capacity, the improving including increasing memory, concentration, and attentiveness, in the consumer of the food bar. *See* page 1, lines 7-8; page 2, lines 15-18; page 3, lines 22-28; page 4, lines 3-8; and page 10, lines 1-2 (abstract). Dependent claim 38 indicates that the carbohydrates have a high glycemic index (GI). *See* page 3, lines 15-28. Dependent claim 41 clarifies the synergistic effect of the claimed food; *i.e.* the combination of phosphatidyl serine and carbohydrates has a greater effect on cognitive functional capacity when consumed

together in a food than each has when consumed separately. *See* page 3, lines 22-28; page 4, lines 3-8; and page 8, lines 13-20.

Independent Claim 32 with Dependent Claims 33-35, 39, and 42

Independent claim 32 is drawn to a food bar for improving the cognitive functional capacity in a consumer of the food bar. The food bar includes a minimum of 40 wt% to about 57 wt% carbohydrates and a minimum of 1 wt% to about 1.4 wt% lecithin extract containing phosphatidyl serine. *See* page 1, lines 7-8; page 2, lines 15-18; page 3, lines 22-28; page 4, lines 3-8; and page 10, lines 1-2 (abstract). Dependent claim 33 defines improving cognitive functional capacity as increasing memory, concentration, and attentiveness in the consumer of the food. *See* page 1, lines 7-8 and page 2, lines 15-18. Dependent claim 34 defines the carbohydrates as simple carbohydrates such as glucose, fructose, sucrose, and combinations thereof. *See* page 1, lines 7-8; page 3, lines 22-28; and page 8, lines 1-7. Dependent claim 35 indicates that the food can further include a minimum of 10 wt% of protein. *See* page 4, lines 9-11. Dependent claim 39 indicates that the carbohydrates have a high glycemic index (GI). *See* page 3, lines 15-28. Dependent claim 42 clarifies the synergistic effect of the claimed food; *i.e.* the combination of phosphatidyl serine and carbohydrates has a greater effect on cognitive functional capacity when consumed together in a food than each has when consumed separately. *See* page 3, lines 22-28; page 4, lines 3-8; and page 8, lines 13-20.

Independent Claim 43 with Dependent Claims 44-46

Independent claim 43 is drawn to a method for improving cognitive functional capacity of a consumer comprising consuming a food including a minimum of 100 mg to about 200 mg of phosphatidyl serine and a minimum of 10 g to about 20 g of carbohydrates, increasing memory, concentration, and attentiveness in the consumer of the food, and improving the cognitive functional capacity of the consumer of the food. *See* page 1, lines 7-8; page 2, lines 15-18; page 3, lines 22-28; page 4, lines 3-8; page 8, lines 8-20; and page 10, lines 1-2 (abstract). Dependent claim 44 indicates that the increase in memory, concentration, and attentiveness in the consumer can be a short term increase. *See* page 8, lines 8-12. Dependent claim 45 indicates that the increase in

memory, concentration, and attentiveness in the consumer can be a long term increase. *See* page 8, lines 8-12. Dependent claim 46 clarifies the synergistic effect of the food used in the claimed method; *i.e.* the combination of phosphatidyl serine and carbohydrates has a greater effect on cognitive functional capacity when consumed together in a food than each has when consumed separately. *See* page 3, lines 22-28; page 4, lines 3-8; and page 8, lines 13-20.

VI. Grounds of Rejection to be Reviewed on Appeal

A. Whether claims 37-42 and 44-46 are indefinite under 35 U.S.C §112, second paragraph.

B. Whether claims 14, 15, 17-19, and 23-46 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,514,973 B1 to Herwig Buchholz et al. ("Buchholz") in view of U.S. Patent Application Publication 2003/0161861 A1 to Vincent Lang et al. ("Lang").

VII. Grouping of Claims

35 U.S.C §112, second paragraph

Claims 37-42 and 44-46 represent a single group.

35 U.S.C. §103(a)

Claims 14, 15, 17-19, and 23-42 encompass a composition and represent a first group (Group I). Claims 43-46 encompass a method and represent a second group (Group II). Both groups are separately patentable from one another and differ in scope from each other so that they present different issues in regard to whether or not the subject matter of the claims is obvious under 35 U.S.C. § 103(a). Accordingly, each of these groups of claims does not stand or fall together.

VIII. Argument

A. Whether claims 37-42 and 44-46 are indefinite under 35 U.S.C §112, second paragraph.

1. Applicable Law- 35 U.S.C. §112, second paragraph

The second paragraph of 35 U.S.C. 112 is directed to requirements for the claims:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

There are two separate requirements set forth in this paragraph: (1) the claims must set forth the subject matter that applicants regard as their invention; and (2) the claims must particularly point out and distinctly define the metes and bounds of the subject matter that will be protected by the patent grant. *See* MPEP 2171.

2. Status of Arguments

The rejection of claims 37-42 and 44-46 under 35 U.S.C §112, second paragraph was first presented by the Examiner in the final Office Action mailed October 14, 2009. Appellant traversed this rejection in the Amendment After Final filed on January 14, 2010. However, this Amendment was not entered. Therefore, the arguments presented herein regarding the rejection under 35 U.S.C §112, second paragraph are new and have not been previously considered by the Examiner.

3. Argument

i. **Recitation of the limitation "greater" does not render claims 40-42 and 46 indefinite.**

Claims 40-42 and 46 recite, *inter alia*, "...the phosphatidyl serine and the carbohydrates upon consumption by the consumer have a greater effect on cognitive functional capacity when consumed together in the food than each has when consumed separately." Emphasis added herein.

The Examiner asserts that the term "greater" is not defined in the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Appellant respectfully disagrees. The claims and specification describe the effect

of a combination (phosphatidyl serine with carbohydrates) which is greater than the effect obtained from each separate element of the combination. Thus, the effect of the combination (phosphatidyl serine with carbohydrates) is more than the single effect of either phosphatidyl serine or carbohydrates. One of ordinary skill in the art would be able to quantitatively compare numerical values in sets of data to determine which sets have a "greater" or "more than" value compared to values of other sets.

ii. **Recitation of the limitation "high" does not render claims 37-39 indefinite.**

Claims 37-39 recite, *inter alia*, "...carbohydrates have a high glycemic index (GI)."

The Examiner asserts that the term "high" is not defined in the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Appellant respectfully disagrees. The term "glycemic index" is a well known term for expressing the amount of fluctuation in blood glucose levels in the body produced by consumption of a particular food. Furthermore, the ranges denoting foods of low, medium, and high glycemic index are known. *See* Appendix of Evidence, Evidence Document viii. Thus, one of ordinary skill in the art would be able to identify carbohydrates having a high glycemic index.

iii. **Recitation of the limitations "short term" and "long term" do not render claims 44 and 45 indefinite.**

Claim 44 recites, *inter alia*, "...increasing memory, concentration, and attentiveness in the consumer of the food is short term." Conversely, claim 45 recites, *inter alia*, "...increasing memory, concentration, and attentiveness in the consumer of the food is long term."

The Examiner asserts that the metes and bounds of these claims are not defined.

Appellant respectfully disagrees. The specification discloses both that cognitive functional capacity improves after consumption of the food (used in the described method) and after continued consumption of the food for period of about one to three

weeks. *See* page 8, lines 8-12. Thus, one of ordinary skill in the art would understand that the food used in the described method has both immediate (short term) and lasting (long term) effects on the cognitive functional capacity of the consumer.

4. Conclusion of Argument A

Accordingly, the claims particularly point out and distinctly claim the subject matter which the Appellant regards as his invention. Therefore, the Appellant respectfully suggests that the rejection of claims 37-42 and 44-46 under 35 U.S.C §112, second paragraph has been overcome and should be withdrawn.

B. Whether claims 14, 15, 17-19, and 23-46 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,514,973 B1 to Herwig Buchholz et al. ("Buchholz") in view of U.S. Patent Application Publication 2003/0161861 A1 to Vincent Lang et al. ("Lang").

1. Applicable Law - 35 U.S.C. § 103(a)

35 U.S.C. § 103(a) imposes the requirement that a claimed invention, to be patentable, must be non-obvious over the prior art "at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." The starting point for discussions of obviousness is Graham v. John Deere Co., 383 U.S. 1 148 USPQ 459 (1966), which set forth the following factors for determining obviousness: (1) the scope and content of the prior art; (2) differences between the prior art and the claims at issue; (3) the level of ordinary skill in the pertinent art; and (4) secondary considerations such as commercial success, long felt but unresolved needs, and failure of others. All evidence, including the secondary considerations, must be weighed before reaching a conclusion on obviousness under § 103. Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1561, 1 USPQ2d 1593, 1594 (Fed. Cir.), cert. denied, 481 U.S. 1052 (1986); Hodosh v. Block Drug, 786 F.2d 1136, 1143, 229 USPQ 182, 188 (Fed. Cir.), cert. denied, 479 U.S. 827 (1986). In addition, the prior art itself must suggest the desirability and, therefore, obviousness of a modification of a reference or the combination of references to achieve a claimed invention without looking to the patent or

application under consideration. Hodosh, 786 F.2d at 1143 n.5, 229 USPQ at 187 n.5; In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). Knowledge is presumed of all references in the same field of invention as the applicant's. However, the test of whether it would have been obvious to select specific teachings and combine them as the applicant did must still be met by identification of some suggestion, teaching, or motivation (TSM test) in the prior art, arising from what the prior art would have taught one of ordinary skill in the art. In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988). Although the Supreme Court recently rejected a rigid application of the "teaching, suggestion, motivation (TSM) test", the Court also recognized that a showing of "teaching, suggestion, motivation" to combine the prior art to meet the claimed subject matter could provide a helpful insight in determining whether the claimed subject matter is obvious. KSR Int'l Co. v. Teleflex Inc. 550 U.S. 398; 82 USPQ2d 1385 (2007). Therefore, it remains necessary to identify the reason(s) why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed in order to properly establish a *prima facie* case of obviousness.

2. Status of Arguments

All arguments presented in this Appeal Brief regarding 35 U.S.C. § 103(a) were previously submitted to the Examiner during prosecution. No new arguments are included. It is noted that although the Amendment After Final filed on January 14, 2010 was not entered, no new arguments were made in this Amendment. Thus, incorporation of text from the Amendment After Final into this Appeal Brief is not and should not be construed as "new argument."

3. Overview of Cited Art

i. **U.S. Patent No. 6,514,973 B1 to Herwig Buchholz et al. (Evidence Exhibit A)**

Buchholz discloses compositions for the treatment and prevention of transmethylation disorders, particularly for the treatment of neurological and pathopsychological diseases. *See* column 1, lines 6-8. The compositions contain three active ingredients; component A: one or more phosphatidyl serines, component B: one or

more methyl transporters, and component C: one or more compounds selected from methyl and methylene donors, provided that the phosphatidyl serines and compounds with methyl transporting properties do not form part of component C. *See* abstract and column 1, line 61 to column 2, line 7. These compositions are useful for reducing elevated levels of homocysteine found in transmethylation disorders. *See* column 1, line 37 to column 2, line 12.

Buchholz discloses, as background, a previous study demonstrating the long-term benefits of phosphatidyl serine supplementation. In this study, it was documented that oral supplementation with 200-300mg of phosphatidyl serine per day for 2 to 6 months improves brain metabolism and benefits cognitive functions such as memory, thinking, learning, and the ability to concentrate, especially in aging people and in patients with certain neurological and pathopsychological conditions. *See* column 2, lines 22-27. However, in the actual composition disclosed by Buchholz, phosphatidyl serine was added only in an amount of 50mg. *See* Example 1.

Buchholz does not teach the role of carbohydrates in improving cognitive function of the brain. Further, Buchholz does not discuss any connection or relationship between phosphatidyl serine and glucose intake in the brain, other than to mention that it has been assumed that phosphatidyl serine is able to stimulate glucose metabolism in the brain. *See* column 2, lines 32-37.

The compositions disclosed by Buchholz are suitable as foods or food supplements and are prepared by combining the active ingredients, components A-C, with edible "nutritional substances", including carbohydrates. Thus, Buchholz adds carbohydrates only to make the phosphatidyl serine more palatable for consumption, and therefore, considers the "nutritional substances", such as carbohydrates, to be inactive ingredients. *See* column 5, lines 40-49 and column 6, lines 9-12.

ii. **U.S. Patent Application Publication 2003/0161861 A1 to Vincent Lang et al. (Evidence Exhibit B)**

Lang discloses the use of a cereal product such as a biscuit or cracker having a slowly digestible starch content relative to the total starch content higher than about 12 wt

%, preferably higher than about 20 wt %, to improve cognitive performances, in particular memory retention, attention, concentration, vigilance and/or mental well-being in people, and particularly in a child and an adolescent. *See* abstract.

In the background material, Lang discusses conflicting experimental results regarding the role of glucose in cognitive functions, some studies show glucose improves these functions, and others show glucose has no role in these processes. *See* paragraphs **[0015]** and **[0016]**. In actual results, Lang shows that the regulation of the glycemic index alone was insufficient to increase cognitive performances and demonstrates that certain cereal products significantly improve cognitive performance, by virtue of the choice of appropriate proportions between slowly digestible starch and the total starch present in the product. *See* paragraph **[0017]**. Lang does not disclose or suggest the use of phosphatidyl serine in the biscuit composition.

In experimental Example 1, Lang compares learning and locomotive activity in two groups of rats, one of which consumes Lang's biscuits and the other ready-to-eat cereals. The rats which consumed biscuits exhibited learning results which were significantly superior to those of the rats which consumed ready-to-eat cereals. Additionally, in locomotive activity, the rats which consumed a biscuit-based breakfast were calm, whereas the rats which consumed a breakfast based on ready-to-eat cereals were more active and showed signs of distress (more passages in the central compartment, this indicating higher distress, since the behavior of crossing a room along the diagonal rather than along the walls is unusual in rats). Lang concludes that the bioavailability of starch makes it possible to explain the differences in results in these experiments. As such, Lang discloses improving cognitive performance by consuming a food product which combines a certain proportion of slowly digestible starch with respect to the total starch content.

4. Composition

Claims 14, 15, 17-19, and 23-42 are Non-Obvious and Therefore Patentable over Buchholz in view of Lang.

Appellant respectfully submits that the combination of Buchholz and Lang does not obviate the composition claimed in independent claims 14, 23, and 32. As described above in the "Summary of the Claimed Subject Matter" section independent claims 14, 23, and 32 are drawn to a food/food bar composition for improving cognitive functional capacity of a consumer of the food/food bar. The food/food bar includes a minimum of 100 mg to about 200 mg of phosphatidyl serine and a minimum of 10 g to about 20 g of carbohydrates.

The Examiner admits that Buchholz does not explicitly teach the roles of carbohydrates in improving cognitive function of the brain (see, *inter alia*, page 5 of the Final Office Action mailed on October 14, 2009). However, the Examiner contends that Lang remedies this deficiency by disclosing a starch-containing cereal product that improves cognitive performance. Therefore, the Examiner takes the position that it would have been obvious for one of ordinary skill in the art at the time the invention was made to derive the claimed composition from the combination of references by incorporating carbohydrates into the composition of Buchholz, since Lang teaches that carbohydrates improve cognitive function.

Appellant respectfully disagrees and submits that 1) the combination of Buchholz and Lang does not disclose every feature of the composition as claimed; 2) the combination of Buchholz and Lang would not produce the composition as claimed; and 3) the prior art provides no reasonable basis for suggestion or motivation to combine the teachings of Buchholz and Lang.

Appellant does not dispute that Buchholz teaches a composition containing phosphatidyl serine and carbohydrates or that Lang teaches a composition which is useful for improving cognitive function and contains starch. However, the teaching of these references does not end here. In order to properly refute the rejection, Appellant has considered each reference in its entirety.

A prior art reference must be considered in its entirety, i.e. as a whole, including portions that would lead away from the claimed invention. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). See MPEP 2142.02 VI.

For example, although Buchholz does teach a food composition including phosphatidyl serine and carbohydrates, phosphatidyl serine is disclosed as an "active" ingredient and various types of carbohydrates as "nutritional substances." *See* the paragraph bridging columns 1-2 and column 5, line to column 6, line 8 of Buchholz. Buchholz does not suggest that glucose, or any other carbohydrate, would have an effect on the function of his composition, or would interact with phosphatidyl serine in the composition to improve cognitive function. This is clearly evident from his designation of carbohydrates as "nutritional substances" rather than "active ingredients."

The Examiner consistently asserts that Lang teaches food products containing carbohydrates, such as starch, improve cognitive performance (see, *inter alia*, page 5 of the Final Rejection mailed on October 14, 2009). However, the actual teachings of Lang provide a more complex view of the effects of carbohydrates on cognitive function. Lang does not disclose that foods merely containing "starch" or "carbohydrates" are capable of improving cognitive function, but rather discloses a cereal product, having a specific ratio of slowly-digestible starch to total starch content, which is capable of improving cognitive function (emphasis added by Appellant). The positive effects are due to the choice of appropriate ratio and not simply from an inclusion of carbohydrates. This is clearly evident in the experimental examples of Lang wherein he tested his food product against ready-to-eat cereals (Example 1) that also contained carbohydrates, but did not improve cognitive functions (emphasis added by Appellant).

Neither the cited patent documents (Buchholz and Lang) nor any other prior art discloses a composition including a synergistically-interacting combination of phosphatidyl serine and carbohydrates which improves cognitive functional capacity. Thus, the combination of Buchholz and Lang can not be said to disclose every feature of the composition as claimed. It follows that if the references do not teach all features of the composition, the combination (of the references) would not produce the composition as claimed, even in the unlikely event that one of ordinary skill in the art were to combine the references.

Furthermore, Appellant respectfully submits that the prior art provides no reasonable basis for suggestion or motivation to combine the teachings of Buchholz and Lang.

For example, the prior art does not provide a reasonable expectation of success of obtaining the claimed composition from simply combining the starch of Lang with the phosphatidyl serine of Buchholz.

Lang discloses conflicting results regarding levels of glucose and improvement of cognitive functions including a showing that regulation of glycemic index (GI) alone is insufficient to increase cognitive performances. *See* paragraphs **[0014]-[0017]** of Lang. This statement is not made in an attempt to negate the fact that some carbohydrates increase cognitive performance or to separate individual teachings of Lang from the whole. Rather, it is made to show that data available in the prior art is not definitive as to how carbohydrates effect cognitive performances and thus, such effects are not easily predictable.

An Applicant may counteract an Examiner's assertion of obviousness by submitting evidence to show that the claimed subject matter would have been non-obvious. MPEP 2141 IV.

In addition to the conflicting data disclosed by Lang regarding carbohydrates, less than definitive data on the influence of phosphatidyl serine on cognitive function and memory was also present in the prior art at the time of the invention. For example, results from an experiment disclosed by Jorissen et al. (Nutrition Neuroscience 4(2):121-134 2001; abstract attached hereto as Evidence Exhibit F) concludes that a daily supplement of phosphatidyl serine (300 mg or 600 mg for 12 weeks) does <u>not</u> affect memory or other cognitive functions in older individuals with memory complaints. Conversely, Schreiber et al. (Israeli Journal of Psychiatry and Related Science 37(4):302-307 2000; abstract attached hereto as Evidence Exhibit G) demonstrates improvement in patients having age-related cognitive decline after supplementation with 300 mg phosphatidylserine for twelve weeks.

Jorissen and Schreiber are provided as evidence to support Appellant's assertions regarding the contradictory state of the prior art at the time of the invention; for example Jorissen demonstrates no effect on cognitive function while Schreiber demonstrates an improvement. Thus, one of ordinary skill in the art would not necessarily consider the effect of phosphatidyl serine on cognitive function to be a sure thing. The noted presence of conflicting data sheds doubt on the alleged predictability of the claimed invention.

Without a reasonable measure of predictability, there is no suggestion/motivation to combine the teachings of Buchholz and Lang or any other prior art, *i.e.* the conflicting data of Jorissen and Schreiber negates any apparent reason to combine.

The claimed food/food bar comprises phosphatidyl serine and carbohydrates, which when consumed in combination, act synergistically to improve cognitive functions of the consumer, such as memory, concentration, learning, and attentiveness.

In Example 1, Lang compares the effects of his composition (biscuits) and commercial ready-to-eat cereals on learning in rats. Although no particular ready-to-eat cereal is identified, the high sugar content of cereals, especially those made for children, is very well known. The results of the comparison showed that the consumption of biscuit is followed by learning which is significantly superior to that following the consumption of cereals. *See* paragraph **[0071]** and Figures 1 and 2 of Lang. The results of Lang contradict the results of the invention, *i.e.* by demonstrating that foods containing high amounts of simple sugars decrease cognitive function. Emphasis added by Appellant. Thus, Lang's results further negate any apparent reason to combine.

Additionally, considering that Lang discloses a food having an effect opposite the effect of the claimed composition, Lang can be considered as teaching away from the claimed composition. *See* MPEP 2141.02 VI.

This is not to say that Lang's experimental results negate his disclosure that carbohydrates improve cognitive function. However, in light of such contradictory data, this teaching alone is insufficient to suggest combination with the teaching of Buchholz.

Appellant points out that all of the above-described non-conclusive information regarding the affects of both phosphatidyl serine and carbohydrates on cognitive functions sheds doubt on the alleged predictability of the claimed invention. In other words, when faced with these conflicting results, one could not be certain what to expect regarding changes in cognitive function. Such conflicting information gives credence to the assertion that there is no reasonable expectation of success of obtaining the claimed composition from simply combining the starch of Lang with the phosphatidyl serine of Buchholz.

In order to traverse grounds of rejection, an Applicant may present objective evidence of non-obviousness. *See* MPEP 716.01; 716.02; and 2145.

During prosecution Appellant submitted two Declarations under 37 C.F.R. § 1.132 signed by the inventor, Dr. Kurt-Reiner Geiss, and filed on December 19, 2008 (Evidence Exhibit C) and June 12, 2009 (Evidence Exhibit D), respectively. The data presented in these Declarations shows a synergistic effect on cognitive functional capacity from the combination of phosphatidyl serine and carbohydrates over the effect of each ingredient alone (*i.e.* phosphatidyl serine alone and carbohydrates alone). Thus, this data constitutes objective evidence of non-obviousness of the claimed composition (food/food bar).

The effect of the combination of phosphatidyl serine and carbohydrates on concentration, memory, and attention is demonstrated in the first experimental example provided in both Declarations. In this experiment, improvements in concentration, memory, and attention were observed in the subjects after twelve weeks of consuming the bars, *i.e.* the claimed composition, and further the improvements were observed to decline after the subjects stopped consuming the bars.

The study volunteers were evaluated pre-supplementation and after twelve weeks of consuming one IQPLUS Brain Bar per day for the first two weeks, followed by half an IQPLUS Brain Bar for the next ten weeks. The IQPLUS Brain Bar contains 200 mg of phosphatidyl serine and 20 g of carbohydrates. After the second evaluation, the volunteers stopped consuming the IQPLUS Brain Bars and were re-evaluated during week twenty-four. The combination of phosphatidyl serine and carbohydrates in the form of the IQPLUS Brain Bar resulted in improvements in all categories of concentration, attention, and memory tested (results after twelve weeks of IQPLUS Brain Bar consumption in comparison to starting values). A comparison of results after twelve weeks consumption with results after an additional twelve weeks without any further supplementation showed a decline in all categories at week twenty-four. The results regarding concentration and attention are shown in Table 2 and results regarding memory and attention are shown in Table 3 (Declaration, experimental example one).

Throughout prosecution the Examiner adheres to the position that any reference describing food products containing carbohydrates can be used in concert with Buchholz to obviate the claimed invention. Appellant respectfully submits that this approach is insufficient to reasonably support the rejection of the claims.

All types of carbohydrates are not equivalent nor are they metabolized in the same manner upon consumption; *i.e.* each type produces different fluctuations in blood glucose levels. This fluctuation is measured by the glycemic index (GI). Many people who are weight-conscious and/or suffer from diabetes benefit from a diet consisting of food having a low glycemic index. Thus, considering the numbers of people suffering from this condition(s), even a quick internet search provides much information regarding the differences among carbohydrate foods. *See*, for example, attached Evidence Exhibit H, accessed from the Official website of the Glycemic Index and GI Database, which lists the glycemic index of many foods and provides advice for people switching to a low GI diet. Many simple carbohydrates have a high glycemic index and are quickly digested. Conversely, some starches have lower glycemic indexes and are slowly digested. Thus, in contrast to the Examiner's position, all carbohydrates can not be used interchangeably to provide the same effects upon consumption. Therefore, the starch of Lang is not an obvious substitute for the carbohydrate of the claimed composition (food/food bar).

A plethora of bars and drinks high in carbohydrate content and/or glycemic index are known in the art and are consumed to provide quick energy. Likewise, phosphatidyl serine supplements are known in the art and are consumed to provide improvements in cognitive functions. Carbohydrates have been added to phosphatidyl serine supplements to make them more palatable for consumption. However, no one has added carbohydrates to phosphatidyl serine supplements with the purpose or expectation that the carbohydrates would be an "active" ingredient and would interact with the phosphatidyl serine to actively improve cognitive functions, such as memory, concentration, learning, and attentiveness. The instant inventor has discovered this unexpected synergistic/functional relationship between phosphatidyl serine and simple carbohydrates. Such an unexpected functional relationship demonstrates that the claimed food/food bars are not obvious in view of the cited patent documents (Buchholz and Lang) or any other prior art.

Evidence of a greater than expected result may be shown by demonstrating an effect which is greater than the sum of each of the effects taken separately (*i.e.* demonstrating "synergism"). Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989). MPEP 716.02(a).

The term "synergism" is commonly defined as the interaction of elements that when combined produce a total effect that is greater than the sum of the individual elements. *See* definition of "synergism" as accessed from the web site www.dictionary.com and attached hereto as "Evidence Exhibit I."

The phosphatidyl serine and the carbohydrates combined in the claimed composition (food/food bar) interact synergistically to provide measurable improvements in cognitive functional capacity upon consumption. Appellant demonstrated a greater than expected increase in cognitive functional capacity after consumption of a combination of phosphatidyl serine and carbohydrates over consumption of phosphatidyl serine or carbohydrates alone (shown in the second experimental example provided in both Declarations of Dr. Kurt-Reiner Geiss). In this experiment, the influence of the claimed food bar on cognition during golfing (tee-off accuracy) was tested and compared to the influence of the ingredients (phosphatidyl serine and simple carbohydrates) alone.

The term "cognition" is commonly defined as the act or process of knowing, which includes perceiving, recognizing, conceiving, judging, reasoning, and imagining. *See* definition of "cognition" as accessed from the web site www.dictionary.com and attached hereto as "Evidence Exhibit J." Thus, it can be said that cognition refers to the processing of information and applying the information processed. The performance of a "golf swing" requires a certain level of cognition. The golf swing is a complex motion and, especially at tee-off, creates high levels of tension with potential negative effects on cognitive function, including memory, attentiveness, and concentration. Memory and focus (attentiveness) play a major role during the golf swing as the golfer has to memorize the perfect swing and recall the motion while trying to hit the ball to the best of his/her ability and all the while staying focused to avoid mistakes. Thus, cognition, memory, focus, and attentiveness are linked with regard to performing a golf swing. Golfers participating in the clinical study first performed a standardized ten minute warm-up that did not include practice shots. After the warm-up, the golfers teed-off twenty times in fifteen second intervals and were asked to hit a target at a distance of 135 meters. The quality of the ball flight was recorded immediately after the ball hit the ground after tee-off. A good ball flight (hit) was defined as "correct flight", "draw", or "fade", whereas all other ball flights were recorded as a miss. A schematic representation

of ball flight is shown in Figure 2 of example two. Also see Jäger et al. J. Int. Soc. Sports Nutr. 4(1):23 2007; attached hereto as "Evidence Exhibit E." After the first test, the golfers consumed a combination of 200 mg phosphatidyl serine and 20 g of simple carbohydrates (as IQPLUS Golf Bar, n=10), 20 g of simple carbohydrates (as a nutrition bar, n=10), or 200mg of phosphatidyl serine (as soft gel capsules, n=2) for six weeks. After six weeks, the ball flight test was repeated. It was found that the combination of phosphatidyl serine and simple carbohydrates resulted in a significant improvement of good ball flights, whereas simple carbohydrate or phosphatidyl serine consumption did not improve performance. *See* "results" section of experimental example two for pre-test and post-test statistical comparisons. Thus, per definition, these results show a synergistic effect. The improvements are known to be due to mental aspects, in light of the conditions of the experiment, *i.e.* the physical, mental, and golf-specific training habits of each individual participant remained unchanged during the supplementation phase.

The Examiner does not find any synergism in Appellant's examples and asserts that a review of Figure 3 (Figure 3 is at page 7 of the Declaration filed on June 12, 2009) does not show any difference between pre and post carbohydrate levels. *See* page 9 of the Office Action mailed on March 12, 2009. Appellant responded to this assertion in the Response filed on June 12, 2009 (pages 20-21). However, the Examiner did not address or even acknowledge this response and repeated the exact same assertion at page 9 of the Final Office Action mailed on October 14, 2009.

Appellant respectfully disagrees with the Examiner's interpretation of Figure 3. The data clearly reflects a measurable difference in performance between pre and post carbohydrate levels. The Carbohydrate group showed an improvement of 1.3% (post 7.9, pre 7.8; difference 0.1=1.3% improvement) in comparison to an improvement of 21.7% for the PS and Carbohydrate Group (post 10.1, pre 8.3; difference 1.8=21.7% improvement). *See* section entitled "result" at the bottom of page 6 of the Declaration filed on December 19, 2008). Thus, in contrast to the Examiner's assertion, the data shows a difference in performance between pre and post carbohydrate levels.

The synergistic effect is apparent from even a quick comparison of the dark bars (post supplementation) of Figure 3 (at page 7 of the Declaration filed on December 19,

2008) shows that the golfers who consumed the food bar (phosphatidyl serine and carbohydrates) achieved a greater amount of correct ball flights than did the golfers who consumed carbohydrates alone or phosphatidyl serine alone combined. This combination of phosphatidyl serine and simple carbohydrates resulted in a statistically significant ($p < 0.05$) improvement of good ball flights, which can result with improved golf scores overall. *See* section entitled "Results" at pages 6-7 of the Declaration filed on June 12, 2009). Furthermore, regarding the data of Figure 3, if one achieves only a small increase with phosphatidyl serine or carbohydrates, one would not expect the combination to provide greater and/or better results. The data clearly shows a statistically significant improvement resulting from consumption of the combination of phosphatidyl serine and simple carbohydrates. This is evidence of an unexpected synergistic effect which negates any reason to combine the teachings of the references.

Additionally, regarding the "control" for the experiment, three groups of data evaluating golf ball flights are shown in Figure 3 (Figure 3 is at page 7 of the Declaration filed on June 12, 2009); one group for subjects consuming phosphatidyl serine alone; a second group for subjects consuming carbohydrates alone; and a third group for subjects consuming the combination of phosphatidyl serine and simple carbohydrates. At the start, ball flights were measured in order to establish a baseline performance (pre-test). The baseline performance is used for comparison against performance measured after a time period of consuming the assigned food such that any improvements can be determined. Thus, the baseline performance functions as a "control" for the experiment. The effects of carbohydrates and phosphatidyl serine were measured individually in order to show that the significant improvement in performance is due to the combination and not to either the carbohydrate or the phosphatidyl serine alone.

Additionally, Appellant conducted a further experiment with golfers using identical conditions as the above-described experiment (Experimental Example Two). The subjects (n=2) consumed 150 mg of phosphatidyl serine and 15 g of carbohydrates on average per day for a period of eight weeks. This group showed a 14% improvement in good ball flights (pre 6.5; post 7.4; difference 0.9 = 14%). *See* "Experimental Example Three" of the Declaration filed on June 12, 2009).

5. Conclusion of Argument B- Composition

First, in view of the Examiner's apparent lack of consideration of Appellant's entire response and subsequent repetition of arguments (described above) Appellant asserts that both the composition claims and the data presented in the Declarations have not been given adequate consideration and thus respectfully requests that the rejection of claims 14, 15, 17-19, and 23-42 be reversed for this reason alone. Regardless, Appellant respectfully submits that the foregoing arguments and attached evidence sufficiently refute the Examiner's case of obviousness against the claimed composition.

After consideration of all of the above arguments, it is clear neither Buchholz nor Lang, alone or in combination, teach or suggest a composition (food/food bar) for improving cognitive functional capacity of a consumer of the food/food bar including a minimum of 100 mg to about 200 mg of phosphatidyl serine and a minimum of 10 g to about 20 g of carbohydrates which synergistically interact to produce the improvement in cognitive functional capacity.

Appellant respectfully submits that he has now shown that 1) the combination of Buchholz and Lang does not disclose every feature of the composition as claimed; 2) the combination of Buchholz and Lang would not produce the composition as claimed; and 3) the prior art provides no reasonable basis for suggestion or motivation to combine the teachings of Buchholz and Lang.

Accordingly, Appellant respectfully submits that independent claims 14, 23, and 32 are non-obvious and therefore patentable over Buchholz in view of Lang.

If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). *See* also MPEP 2143.03

As claims 15, 17-19, 37, and 40 depend from claim 14; claims 24-31, 36, 38, and 41 depend from claim 23; and claims 33-35, 39, and 42 depend from claim 32, these dependent claims necessarily include all the elements of their base claims. Thus, Appellant respectfully submits that the dependent claims are allowable over Buchholz in view of Lang at least for the same reasons.

Accordingly, Appellant respectfully suggests that the rejection of claims 14, 15, 17-19, and 23-42 has been overcome and should be withdrawn.

6. Method Claims

Claims 43-46 are Non-Obvious and Therefore Patentable over Buchholz in view of Lang.

Appellant respectfully submits that the combination of Buchholz and Lang does not obviate the method claimed in independent claim 43. As described above in the "Summary of the Claimed Subject Matter" section independent claim 43 is drawn to a method for improving cognitive functional capacity of a consumer comprising consuming a food including a minimum of 100 mg to about 200 mg of phosphatidyl serine and a minimum of 10 g to about 20 g of carbohydrates, increasing memory, concentration, and attentiveness in the consumer of the food, and improving the cognitive functional capacity of the consumer of the food.

People are constantly seeking new, easy, and effective methods for improving their physical performances and/or mental abilities. Most of these methods focus on nutrient supplementation or on manipulating the bioavailability of consumed nutrients. The cited art provides examples of such methods. Buchholz discloses oral supplementation with phosphatidyl serine as a means for improving brain metabolism to benefit cognitive function. *See* column 2, lines 22-25. Lang discloses a method for promoting attention, concentration, and/or memorization in a person by consuming a cereal product having a greater content of slowly-digestible starch relative to the total carbohydrate content. *See* paragraphs **[0017]**; **[0018]**; and **[0030]**-**[0034].**

In contrast, the claimed method takes advantage of an interaction between two ingredients, phosphatidyl serine and carbohydrates, in a food product such that the interaction can be used in order to improve cognitive functional capacity. Prior to the instant invention, this interaction of phosphatidyl serine and carbohydrates had not been shown nor would have been expected.

During prosecution of a patent application, an applicant may provide evidence to establish that results are unexpected and significant.

The evidence relied upon should establish "that the differences in results are in fact unexpected and unobvious and of both statistical and practical significance. Ex parte Gelles, 22 USPQ2d 1318, 1319 (Bd. Pat. App. & Inter. 1992). See also MPEP 716.02(b) I.

The phosphatidyl serine and the carbohydrates combined in the food product used in the claimed method interact synergistically to provide measurable improvements in cognitive functional capacity upon consumption. Appellant demonstrated a greater than expected increase in cognitive functional capacity after consumption of a combination of phosphatidyl serine and carbohydrates over consumption of phosphatidyl serine or carbohydrates alone (shown in the second experimental example provided in both Declarations of Dr. Kurt-Reiner Geiss). In this experiment, the influence of the claimed food bar on cognition during golfing (tee-off accuracy) was tested and compared to the influence of the ingredients (phosphatidyl serine and simple carbohydrates) alone.

The Examiner does not find any synergism in Appellant's examples and asserts that a review of Figure 3 (Figure 3 is at page 7 of the Declaration filed on June 12, 2009) does not show any difference between pre and post carbohydrate levels. *See* page 9 of the Office Action mailed on March 12, 2009.

Appellant respectfully disagrees with the Examiner's interpretation of Figure 3. The data clearly reflects a measurable difference in performance between pre and post carbohydrate levels. The Carbohydrate group showed an improvement of 1.3% (post 7.9, pre 7.8; difference 0.1=1.3% improvement) in comparison to an improvement of 21.7% for the PS and Carbohydrate Group (post 10.1, pre 8.3; difference 1.8=21.7% improvement). *See* section entitled "result" at the bottom of page 6 of the Declaration filed on December 19, 2008). Thus, in contrast to the Examiner's assertion, the data shows a difference in performance between pre and post carbohydrate levels.

The synergistic effect is apparent from even a quick comparison of the dark bars (post supplementation) of Figure 3 (at page 7 of the Declaration filed on December 19, 2008) shows that the golfers who consumed the food bar (phosphatidyl serine and

carbohydrates) achieved a greater amount of correct ball flights than did the golfers who consumed carbohydrates alone or phosphatidyl serine alone combined. This combination of phosphatidyl serine and simple carbohydrates resulted in a statistically significant ($p < 0.05$) improvement of good ball flights, which can result with improved golf scores overall. *See* section entitled "Results" at pages 6-7 of the Declaration filed on June 12, 2009). Furthermore, regarding the data of Figure 3, if one achieves only a small increase with phosphatidyl serine or carbohydrates, one would not expect the combination to provide greater and/or better results. The data clearly shows a statistically significant improvement resulting from consumption of the combination of phosphatidyl serine and simple carbohydrates. The combination may be formed easily and consumed as a single food product. Thus, in addition to unexpected and statistically-significant results, the invention also has a practical significance to any consumer interested in improving their cognitive functional capacities.

7. Conclusion of Argument B-Methods

First, it is noted that the method claims 43-46 have never been directly addressed by the Examiner, thus Appellant asserts that these claims have not been given adequate consideration and thus respectfully requests that the rejection of claims 43-45 be reversed for this reason alone. Regardless, Appellant respectfully submits that the foregoing arguments and attached evidence sufficiently refute the Examiner's case of obviousness against the claimed method.

After consideration of all of the above arguments, it is clear neither Buchholz nor Lang, alone or in combination, teach or suggest a method for improving cognitive functional capacity of a consumer comprising consuming a food including a minimum of 100 mg to about 200 mg of phosphatidyl serine and a minimum of 10 g to about 20 g of carbohydrates which synergistically interact to produce an increase in memory, concentration, and attentiveness to improve the cognitive functional capacity of the consumer of the food.

Appellant respectfully submits that he has now shown that 1) the combination of Buchholz and Lang does not disclose every feature of the method as claimed; 2) the combination of Buchholz and Lang would not produce the method as claimed; and 3) the

prior art provides no reasonable basis for suggestion or motivation to combine the teachings of Buchholz and Lang.

Accordingly, Appellant respectfully submits that independent claim 43 is non-obvious and therefore patentable over Buchholz in view of Lang.

If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious, In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). See also MPEP 2143.03

As claims 44-46 depend from claim 40, these dependent claims necessarily include all the elements of their base claims. Thus, Appellant respectfully submits that the dependent claims are allowable over Buchholz in view of Lang at least for the same reasons.

Accordingly, Appellant respectfully suggests that the rejection of claims 43-46 has been overcome and should be withdrawn.

IX. Conclusion of Appeal Brief

For all of the reasons stated above, the Appellant respectfully contends that each claim is patentable. Therefore, reversal of all rejections is courteously solicited.

A fee of for filing this Appeal Brief pursuant to 37 C.F.R. §41.20 (b)(2) in the amount of $540 is believed to be due and is being paid via credit card. Please charge any additional fees (or credit any overpayment of fees) to the Deposit Account of the undersigned, Account No. 500601 (Docket No. 7390-X03-018).

Respectfully submitted,

/Paul D. Bianco/

Dated: May 17, 2010 By:

Paul Bianco. Reg. No. 43,500
Attorney for Appellant

FLEIT GIBBONS GUTMAN
BONGINI & BIANCO P.L.
21355 East Dixie Highway
Suite 115
Miami, Florida 33180
Telephone: (305) 830-2600
Facsimile: (305) 830-2605

X. Appendix i: Claims

The currently pending claims are as follows:

Claims 1-13. (Cancelled)

Claim 14. (Rejected) A food for improving cognitive functional capacity of a consumer of the food comprising a minimum of 100mg to about 200mg of phosphatidyl serine and a minimum of 10g to about 20g of carbohydrates.

Claim 15. (Rejected) The food of claim 14, wherein improving cognitive functional capacity includes increasing memory, concentration, and attentiveness in the consumer of the food.

Claim 16. (Cancelled)

Claim 17. (Rejected) The food of claim 15, wherein the carbohydrates are simple carbohydrates selected from the group consisting of glucose, fructose, sucrose, and combinations thereof.

Claim 18. (Rejected) The food of claim 15, further comprising a minimum of 10 wt% of protein.

Claim 19. (Rejected) The food of claim 15, wherein the food is a functional food selected from the group consisting of beverages, bread spreads, chocolate products, candy products, milk, diary products, diet foods, and cereals.

Claims 20-22. (Cancelled)

Claim 23. (Rejected) A food bar for improving cognitive functional capacity of a consumer of the food bar comprising a combination of phosphatidyl serine and

carbohydrates, said combination including a minimum of 100mg to about 200mg of phosphatidyl serine and a minimum of 10g to about 20g of carbohydrates, wherein glucose intake into brain cells of the consumer is improved by consumption of said food bar.

Claim 24. (Rejected) The food bar of claim 23, wherein improving cognitive functional capacity includes increasing memory, concentration, and attentiveness in the consumer of the food bar.

Claim 25. (Rejected) The food bar of claim 24, wherein said food bar has a weight of at least 20g to about 35g.

Claim 26. (Rejected) The food bar of claim 24, wherein the carbohydrates are simple carbohydrates selected from the group consisting of glucose, fructose, sucrose, and combinations thereof.

Claim 27. (Rejected) The food bar of claim 24, further comprising a minimum of 10 wt% to about 16 wt% of protein.

Claim 28. (Rejected) The food bar of claim 24, further comprising a minimum of 15 wt% to about 27 wt% of fat.

Claim 29. (Rejected) The food bar of claim 24, wherein said food bar has a water content of less than 3%.

Claim 30. (Rejected) The food bar of claim 24, wherein said food bar has a chocolate coating and is enriched with vitamins.

Claim 31. (Rejected) The food bar of claim 24, wherein said food bar is a functional food product.

Claim 32. (Rejected) A food bar for improving cognitive functional capacity of a consumer of the food bar comprising a minimum of 40 wt% to about 57 wt% carbohydrates and a minimum of 1 wt% to about 1.4 wt% lecithin extract containing phosphatidyl serine.

Claim 33. (Rejected) The food bar of claim 32, wherein improving cognitive functional capacity includes increasing memory, concentration, and attentiveness in the consumer of the food bar.

Claim 34. (Rejected) The food bar of claim 33, wherein the carbohydrates are simple carbohydrates selected from the group consisting of glucose, fructose, sucrose, and combinations thereof.

Claim 35. (Rejected) The food bar of claim 33, further comprising a minimum of 10 wt% of protein.

Claim 36. (Rejected) The food bar of claim 23, wherein said food bar includes 200mg of phosphatidyl serine and 18g of carbohydrates and wherein improving cognitive functional capacity includes increasing memory, concentration, and attentiveness in the consumer of the food bar.

Claim 37. (Rejected) The food of claim 14, wherein said carbohydrates have a high glycemic index (GI).

Claim 38. (Rejected) The food bar of claim 23, wherein said carbohydrates have a high glycemic index (GI).

Claim 39. (Rejected) The food bar of claim 32, wherein said carbohydrates have a high glycemic index (GI).

Claim 40. (Rejected) The food of claim 14, wherein the phosphatidyl serine and the carbohydrates upon consumption by the consumer have a greater effect on cognitive functional capacity when consumed together in the food than each has when consumed separately.

Claim 41. (Rejected) The food bar of claim 23, wherein the phosphatidyl serine and the carbohydrates upon consumption by the consumer have a greater effect on cognitive functional capacity when consumed together in the food bar than each has when consumed separately.

Claim 42. (Rejected) The food bar of claim 32, wherein the phosphatidyl serine and the carbohydrates upon consumption by the consumer have a greater effect on cognitive functional capacity when consumed together in the food bar than each has when consumed separately.

Claim 43. (Rejected) A method for improving cognitive functional capacity of a consumer comprising consuming a food including a minimum of 100mg to about 200mg of phosphatidyl serine and a minimum of 10g to about 20g of carbohydrates, increasing memory, concentration, and attentiveness in a consumer of the food, and improving the cognitive functional capacity of the consumer of the food.

Claim 44. (Rejected) The method of claim 43, wherein increasing memory, concentration, and attentiveness in the consumer of the food is short-term.

Claim 45. (Rejected) The method of claim 43, wherein increasing memory, concentration, and attentiveness in the consumer of the food is long-term.

Claim 46. (Rejected) The method of claim 43, wherein the phosphatidyl serine and the carbohydrates upon consumption by the consumer have a greater effect on cognitive functional capacity when consumed together in the food than each has when consumed separately.

XI. Appendix ii: Claim Support Charts

Independent claim 14 with Dependent Claims 15, 17-19, 37, and 40	**Support in the Specification as Filed**
Independent claim 14	pg. 1, lines 7-8; pg. 2, lines 15-18; pg. 3, lines 22-28; pg. 4, lines 3-8; pg. 10, lines 1-2 (abstract)
Dependent claim 15	pg. 1, lines 7-8; pg. 2, lines 15-18
Dependent claim 17	pg. 1, lines 7-8; pg. 3, lines 22-28; pg. 8, lines 1-7
Dependent claim 18	pg. 4, lines 9-11
Dependent claim 19	pg. 8, lines 13-20
Dependent claim 37	pg. 3, lines 15-28
Dependent claim 40	pg. 3, lines 22-28; pg. 4, lines 3-8; pg. 8, lines 13-20

Independent claim 23 with Dependent claims 24-31, 36, 38, and 41	**Support in the Specification as Filed**
Independent claim 23	pg. 1, lines 7-8; pg. 2, lines 15-18; pg. 3, lines 22-28; pg. 4, lines 3-8; pg. 10, lines 1-2 (abstract)
Dependent claim 24	pg. 1, lines 7-8; pg. 2, lines 15-18
Dependent claim 25	pg. 4, lines 14-19, 28-29; pg. 8, lines 1-7; Figure 2A; Figure 2B
Dependent claim 26	pg. 1, lines 7-8; pg. 3, lines 22-28; pg. 8, lines 1-7
Dependent claim 27	pg. 4, lines 9-11
Dependent claim 28	pg. 4, lines 9-11
Dependent claim 29	pg. 4, lines 20-21

Dependent claim 30	pg. 3, lines 29-30; pg. 4, lines 12-13, 28-29; pg. 7, lines 26-31; pg. 8, lines 1-7; Figure 2B
Dependent claim 31	pg. 8, lines 13-20
Dependent claim 36	pg. 1, lines 7-8; pg. 2, lines 15-18; pg. 3, lines 22-28; pg. 4, lines 3-8; pg. 10, lines 1-2 (abstract)
Dependent claim 38	pg. 3, lines 15-28
Dependent claim 41	pg. 3, lines 22-28; pg. 4, lines 3-8; pg. 8, lines 13-20

Independent claim 32 with Dependent claims 33-35, 39, and 42	**Support in the Specification as Filed**
Independent claim 32	pg. 1, lines 7-8; pg. 2, lines 15-18; pg. 3, lines 22-28; pg. 4, lines 3-8; pg. 10, lines 1-2 (abstract)
Dependent claim 33	pg. 1, lines 7-8; pg. 2, lines 15-18
Dependent claim 34	pg. 1, lines 7-8; pg. 3, lines 22-28; pg. 8, lines 1-7
Dependent claim 35	pg. 4, lines 9-11
Dependent claim 39	pg. 3, lines 15-28
Dependent claim 42	pg. 3, lines 22-28; pg. 4, lines 3-8; pg. 8, lines 13-20

Independent claim 43 with Dependent claims 44-46	**Support in the Specification as Filed**
Independent claim 43	pg. 1, lines 7-8; pg. 2, lines 15-18; pg. 3, lines 22-28; pg. 4, lines 3-8; pg. 8, lines 8-20; pg. 10, lines 1-2 (abstract)
Dependent claim 44	pg. 8, lines 8-12
Dependent claim 45	pg. 8, lines 8-12
Dependent claim 46	pg. 3, lines 22-28; pg. 4, lines 3-8; pg. 8, lines 13-20

XII. Appendix iii: Means Plus Function Analysis

None.

Due to the nature of the claims involved in this appeal a means plus function or step plus function analysis under 35 U.S.C. §112, sixth paragraph is not required.

XIII. Appendix iv: Related Cases

None

XIV. Appendix v: Evidence